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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/698,971	10/31/2003	Shingo Kataoka	1324.68596	8808

24978 7590 09/12/2005

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CHICAGO, IL 60606

EXAMINER

HON, SOW FUN

ART UNIT	PAPER NUMBER
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1772

DATE MAILED: 09/12/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

Application No.

10/698,971

Applicant(s)

KATAOKA, SHINGO

Examiner

Sow-Fun Hon

Art Unit

1772

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 22 August 2005.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1 and 2 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-2 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 31 October 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date 10/03.
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_.

## DETAILED ACTION

### *Response to Amendment*

1. Applicant's election without traverse of claims 1-2 by canceling non-elected claims 3-10 in the reply filed on 8/22/05 is acknowledged.

### *Claim Rejections - 35 USC § 103*

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claim 1 is rejected under 35 U.S.C. 103(a) as being unpatentable over Yeoh (US 5,528,394).

Yeoh teaches a liquid crystal display device comprising: an upper substrate 1 on which are arranged an upper electrode 2 for applying a voltage, and an upper alignment control layer 4 formed on the upper protecting film 3 formed on the upper electrode 2, and performed an aligning treatment; a lower substrate 9 on which are arranged a lower electrode 8 for applying a voltage in cooperation with the upper electrode 2, and a lower alignment control layer 6 formed on the lower protecting film 7 formed on the lower electrode 8, and performed an aligning treatment in the same direction as the upper alignment control layer (alignment layers 4 and 6 have the same rubbing directions 19 and 20, column 4, lines 13-30). Yeoh teaches that the protective films are not provided in another embodiment (column 4, lines 35-40) demonstrating that it would have been

Art Unit: 1772

obvious to one of ordinary skill in the art at the time the invention was made, to have formed the alignment control layers 4, 6 directly on the electrodes 2, 8, in order to minimize layers.

Yeoh teaches that ferroelectric liquid crystals are sealed between the upper alignment control layer and the lower alignment control layer, and form a chevron-layer structure which is so bent that the inside director of the liquid crystal from both sides of the upper and lower alignment control layers is protruded in the direction of the alignment treatment (C2 chevron configuration, column 2, lines 38-50), which is the C2 chevron configuration as defined by Applicant's specification (Page 10, 2<sup>nd</sup> paragraph). Yeoh teaches that the high pre-tilt surface alignment layer does not allow both C1 and C2 chevron configurations to be present (column 3, lines 6-22). Therefore the ferroelectric liquid crystals are monostable.

3. Claim 2 is rejected under 35 U.S.C. 103(a) as being unpatentable over Yeoh as applied to claim 1 above, and further in view of Kodan (US 5,323,172).

Yeoh teaches an obvious embodiment in which a liquid crystal display device comprises: an upper substrate on which are arranged an upper electrode for applying a voltage, and an upper alignment control layer formed on the upper electrode and performed an alignment treatment; a lower substrate on which are arranged a lower electrode for applying a voltage in cooperation with the upper electrode, and a lower alignment control layer formed on the lower electrode and performed an aligning treatment in the same direction as the upper alignment control layer; and monostable liquid crystals sealed between the upper alignment control layer and the lower

Art Unit: 1772

alignment control layer, and form a chevron-layer structure which is so bent that the inside director of the liquid crystal from both sides of the upper and lower alignment control layers is protruded in the direction of the aligning treatment, as described above.

In addition, Yeoh teaches that the alignment control layer is an organic polymer film (polyimide, column 3, lines 30-40), but fails to disclose that it is without side chain alkyl structure.

Koden teaches a liquid crystal display device in which ferroelectric liquid crystals form a chevron-layer structure at room temperature, which is so bent that the inside director of the liquid crystal from both sides of the upper and lower alignment control layers is protruded in the direction of the aligning treatment (C2 orientation, column 16, lines 1-10), which is the C2 chevron configuration as defined by Applicant's specification (Page 10, 2<sup>nd</sup> paragraph), except for a region of C1 orientation. Koden teaches that instead of polyimide, the alignment control layers can be polyvinyl alcohol (PVA, column 16, lines 1-5), which are organic polymer films without side chain alkyl structure.


Therefore it would have been obvious to one of ordinary skill in the art at the time the invention was made, to have used polyvinyl alcohol, which is an organic polymer film known to be without side chain alkyl structure, in place of the polyimide of Yeoh, in order to provide a C2 chevron configuration using the physical properties provided by the polyvinyl alcohol, as taught by Koden.

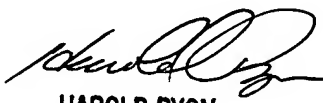
Art Unit: 1772

Any inquiry concerning this communication should be directed to Sow-Fun Hon whose telephone number (571)272-1492. The examiner can normally be reached Monday to Friday from 10:00 AM to 6:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Harold Pyon, can be reached on (571)272-1498. The fax phone number for the organization where this application or proceeding is assigned is (571)273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

  
Sow-Fun Hon  
09/02/05

  
HAROLD PYON  
SUPERVISORY PATENT EXAMINER  
1772